

SEQUENCE LISTING

IAP20 Rec'd PCT/PTO 13 FEB 2006

<110> greenovation Biotech GmbH

<120> Bryophyte expression promoting regions

<130> R 42095

<160> 27

<170> PatentIn version 3.1

<210> 1

<211> 1533

<212> DNA

<213> Physcomitrella patens

<400> 1

tagcataaga taaagatggt ctctacctaa tttattttta tttatcacta ataactcata	60
tcaatctaaa atatataaat gcctttaaca atagaagaat atgattcaac aaaccaatt	120
ctatcattaa aaatatatct aagattagat atgataaaaa tagataataa tattaataaa	180
tcatttttaag gttgtaatgc aactataata atttttaata ttataacttt ttagtttttt	240
aaaaataaaaa taaaatgtta aaatattata aaataattat actttatata tttatgatca	300
agttagtaca ttgatacatt taaagtccaa aataatttaa tgataccaac ttgcaaaaaa	360
tttaatatata ttaaaatatt ttaaaaagtt aagagcaaga aaaattattc taaatagaat	420
tcataccatg gtattataaa gatacaaaga atcaatgtgt atttatttat tttacataca	480
ttacttgcaa tatatggttt atactacaaa tgactatata ttgaagatac taaccacaaa	540
aataaaaaatc cagcactaga taattctaaa aacatgaaat acaataaaac attacattac	600
tagcttatat ggttactaaa tattttttaa ttatacaaat aaaaaataaa aataaaacaa	660
aaaaatccta tagtgacaag aaataaaata aaataaaaaa attataattg accaatccct	720
aaaacattaa tatttaaggg atattcatat gacaataaag ataatttatt tcatggaacc	780
ttgattatit tatcttttaa aggtggtatt tttaaaattg tttaatggta cttaaaatat	840

tgtatttata tagagaaaat cctccaaaaa aattctctca caagggaata gaattcctca 900
 agttttttctc ttgactaaat tgaccaacca ccaaacaacc cacgtcatcc atccatccaa 960
 cccccacaca acccaattgt ttctccattg tagacatcga caaatgaaaa tcatccgatg 1020
 acgtatacac ttcatcctct ggtccctcca gggtgccatg agccacatcc cgaccgccta 1080
 tttcagatcc gacggcacag ggtgacagag cagcggctct agaccacgcc atttggaact 1140
 cgccagccct gccccagcta acagtttcaa agctgcccgc cataaccggg tcctcccagg 1200
 gcggttagat cgtccatcct acgggagcac atataatact gccctagtgc cctaatacga 1260
 tgggaacggg gagtccttta tctctctcgg aaagcgactc attcgccagt gtgcgcacatg 1320
 cccgtgtccc aaggcaccgg gccagactct cgcacgcggt ctaccacacac tcacccccac 1380
 tcaccctgtg ttttctctgc ccccttcgcg ctcttcgtgt gtgtgtgttt tttcacggtc 1440
 gattggcgag ttgcgaagga gggcaagggt gctgtggtgc agcatcagct ggtagtaagt 1500
 cagtcagggt tcgggtcgcg gtagttggac aag 1533

<210> 2

<211> 1539

<212> DNA

<213> *Physcomitrella patens*

<400> 2

atgtatttcg gagcgatttc gtgtgctggt ggtgtctttt ggttggaagc gatttaaaca 60
 ggagagtctg tttggtggct tagggtaatt cgggtggagcc tgaaagatat tgctacgtct 120
 tgaaatacca tcttgtttca gtgcgcattg cttgcaaaag cattgatagt tgtagcggga 180
 tatggtgctg tttatggttg tatttgagca tatgtttcgt gacatctgtg ttgcttggtg 240
 ggcttgccat actggtagtg tcttgttgag tatcatattt actttccaat gtaatattca 300
 acattttctc ctagcattac tataccattt ccactatctt ccaatggcgc tatcgtctcc 360
 ctgggataca ttaaacccat atttgtagtc cagtgcatta aatgcatgtg aaatcgcat 420
 tatagatgcg catatttaat gtcaaattag acatcttcac tcatataata cattttacca 480
 aaaaatgaaa tgtacacaca gaatattttc aaactgccga ctatctcaaa aacctataca 540
 ttatcaatct cattgacata cctcattgaa atactcctca ttgaaatact acataatttt 600
 cattgtcaat attgccaaca ttcaaccatg agaagctgat tattatttct tttatactgc 660
 ttactctctt aatgcaaatt caccattcct catgagagca gctgtatcta ctcccctgat 720
 caatattact actaacttct caggaatagt actcgatatg ttgcgctggg tcagttacgc 780
 aattataaag tccatcgtgt aaaccataat cgtcacaact ggatatctga tgccagaatt 840

tcagcaaatt ttagtgccga tccgaccagt tcaatgcaga agaggaatat aactatctag	900
aggttggtca caatcttttt cattacagtg cagccaaagt tctgcaacga agatacatc	960
gcaacttgca tgcaagggtga agacacatat cgcggctaga tcctcagttc gttgttaata	1020
cctgggaaag aaaatcaaca aatcgaattt ttctgcatca aatagccatg acaaagatta	1080
gtacttccag tgcaagtata gtctgcggaa atatatcgca gtcctcgtae tacagcttca	1140
aaatttggtt acatgacgag gatttcgacg cacaagaaca gaattaaccc gatcgtatcg	1200
agcgttacag taaacgagac gaagtgcctg tgtcttcaaa ccggcagatc tctacgaagt	1260
aagaatctac tcagcagtga gagcgagagc atctggtgtg gcagaatcta ctatgattac	1320
aagtgcccta tactgaatgt agaagcctgt atccacctca tataggaaac gaagtaatcc	1380
ataccgacat gttacatatc tccactgaag cagttccgta tgggcataca ggaaatgatg	1440
aagcacaacg cgtataccaa ttttttatca gatacacaat caccgaattc aaaacgcacg	1500
tttatacaac caacacgcca tactcaagat gagcaggca	1539

<210> 3

<211> 1197

<212> DNA

<213> *Physcomitrella patens*

<400> 3

tccttagtcg agaaggcgcg ggacgtgagt gagctctgaa gataagcttc caatttgcca	60
ctgcaagtgt aacctgctcc atcgggcgcg agtccgtagg gatcatgaac acctcatttc	120
acttggcggt agtgcactct agcggcattg aagcaatcca tgccttcaga atgagtcgcg	180
gggggcagtg aacgaactag ttaagaaatc cagtaatgac ggcaccacat cggcagatcc	240
agatccattg cagattatcc tcttcagccg gaccgaataa accatgccta aataaccacc	300
ggaatgtgtc ctgtgcggga ctgattgttt tccaaagaaa cactaactaa ttatatccag	360
acagtgggat gtatgcgggt atccgtgaag ccagatatga gatctctgat aaacctgagg	420
aagatgtctt acatggcgcg acgggaaaca cgaagaaaag ccgaggagaa ggtattgaaa	480
gctgagcata gccattggct ggtgaggaaa gggcatgcaa caactcatcg aaagcggagt	540
aaactttgaa atcccgtagg ctcatgcga tgttctaaat tcttagcctc gacgacgatt	600
tcaaggtctg attcgaagct tccgagcggg gctccggaac tgtcacttca gtcgactttg	660
aaatgtgaag cgactttgct cacttgtgac acagcaattc aactccacaa tataaaaaaa	720
tcgcgaaaca aaaaaaaaaa aaaaaaaatc tactttactc gtcgatgttc cactcgaaga	780

caaacagctt taaagcgttt acctgtggtg gagatagatt tcggcgaagg aattcaaatc	840
cagcaaccct cccactcgta ccgcagacct tgagtttgaa cggttctggt gctgtttgcg	900
gtgagttcaa aactcgactg acctctctga aacaaaaagt ttaccttgag ctgcccgaga	960
atctccgaac gttcgatata agatccaacg gtctcaagaa attctccttc gaggaacacc	1020
tatgccagg ggaggggggt tcctttatct ttctcctct gccgcaatcc atttcattgt	1080
gcttgaggga ctgtcatccc tccccttggt gccagtggta tccggagggt cccgcgacac	1140
cttctggtgc cggaactaag gtctgttggt cctttcgtga ggtagagcac actgaag	1197

<210> 4

<211> 1012

<212> DNA

<213> *Physcomitrella patens*

<400> 4

atgcgaccg aaggatgagt acacgcgttt tggttttacg ttactgactt ttagctcctc	60
cattcacact gcaggccctg gtttactggt gaaagcacgg ttataccctc cgtaaactga	120
acattctggt tcagcgctc gtgtcttagt tgtcctttgg ttcacttttt agtttggaag	180
caagtcgttg tatagatgat acttagcaca tatagttgct gtcgatttgt ttttaagttca	240
gcattccgct gcctgaattt cagtaaatac cttgtccaac ttcgatgcaa tataagttgg	300
cttcagtatc cagtcttgcc ttactccttc attgcaatct tgggtggcgg ctggtgcgcc	360
tcgtccactt tcacgatgta cctcgtcagc ttgtttgaac acttcctttc tcctactgag	420
tatggcggtg gcctcttttt ccaagctctg ttgatgtagg tcctaccttg tcaaaacatc	480
accacagag atttgacgac aatcgtaatt ttaatccgat tgtatggggg tcctgtcata	540
gtcaatatat taacgcccat cctctcactt accaacgtct gttaccaact ggacaataat	600
gcattcacia ccaaagtgcg atttttgtat gagttggaaa tatcgaaaca gttagtgccg	660
gtaattcacg caaatagttg tgtcatggaa actttttttt aactttctgt tgtccaatca	720
tcgtgctgaa acatttagaa atgtggcaga cagttgcatt tgatgtatca actgctgtgg	780
tagtaacact tggtgaaact gtaagataga catgccaaact ttctgggtgct atgtgcta	840
tggttatatc ttctgaaga atggtacaat tcaaatgaaa gtgggtggga gaattgat	900
cattgatagt ggaatagggt attgcaatca gtgagtcctt ttttcagggt agctaata	960
ccttactgat tatccattga ccaccagtgt ggcttggtga atgcgtgaag tt	1012

<210> 5

<211> 1386

<212> DNA

<213> *Physcomitrella patens*

<400> 5

ccgtgggact tagttgtctt cacttcatta ggaaatctgt ttgagcctct ttccattcca	60
atctttctcga caaaataggt tttttcagtg actcataact tattgtgctt tgcaaaattc	120
ccactaatcc gaaatgtatg gtgtgatcac cgagctttta aattgattgt gtttgggcag	180
tctacgaaaa atccagacgt ggagccttcg aggaacaggt tgttcgcgca ccgctacttc	240
tgaacttcac aacgccgcgt ctatgtcgct ctaactcaga ggctataaca caagttagcg	300
atgtccatcc ctctagtctt catatttgca acattaggag gaggcacacg ctggtcgaga	360
tgcccgtgga actcttccag attgctacca tcaatgcact cgtagacaga tccaaaagtc	420
attccacatt attcaacatt aagggatccc caactgacca accaagagca ggtgctatga	480
gtggaacttg ttattttcca aatgagcgtc gactacatat gcccaggcag aaggatatgc	540
cgaggtatct gggggggcag gcatgtgttt tgtgtaaagt acccccaggg taagaacttt	600
taagcggcgg cactggattc agaaacagtg gacagatata tccattgcca atgtattgat	660
tggctggcga agaactgttg caaaccacga ccagccgtag gggcgtaaaa tttgaatcca	720
ctgtttaaat ttcaaatttc aaacctcgac ggagtttctt ttagcttttc agatgggcgc	780
agaacggtta ggaaaactgtc ccgtcgcccg aatttgaatt taaaaataa atcaaaacgc	840
tagagcttcg attagtatgg gcttttttca ctcttctgtc caattctttt tgttttttac	900
ctcatgcaag gcggtcggct aaagtgactt acagggagga atattactga gagcaagagt	960
tttaccacgt tgtaggatct ggagaaatcc aacgatgcta ggcctacgca acgagtgtga	1020
ttcaacgcca gctataatct cattcgtgcc gtcgatcccg ccatccaacg gcgcagacgc	1080
tttgcggtggg aattgtacct tgccctacgat tggaatttga ctggcagctc ttgagctgga	1140
atttacttgt ctgcctgaga aagttgaagc gtaagatgct cgatccaacg atgggcagaa	1200
agtgttcgtg ggcaggaacc aaagccctag ggccggctcc tcctttttatc tatctctctg	1260
gcatactctt tctcagtggt cccccaggga cgtcttcttc tctccttttg ttcagcgtct	1320
cagtgtctga gggacgggtt gccgtctttg tttcttcgtt ctcgtttag atcatcctta	1380
gcgaag	1386

<210> 6

<211> 997

<212> DNA

<213> *Physcomitrella patens*

<400> 6

```

ttgtgacctc tctctcgtt atcattacgt agcacgctac gaacaggaca ttctgtttca      60
gcgtctaggg tctttcattc agcatttaga accaaatcat tgtatagatt tcaccagca      120
taccaagtag ctattgattt gttgtgagtt cagcatgctg ctgtctgac cgaagattat      180
ttgtaattga ctgttatatt tgagcatttc tgttcaatca tgtgggtgtgg gtttgaattt      240
taattagcag gcactgagtt ccgtgacccg aaaagaattt tctgagaata gccaggtgag      300
ttgcttcctc ttttgctgtc ggggatattt cttccgaaat atgggttatc cagcgtctca      360
tccgcttctg ctctgtgcta tgtgaacatg aatgcaattg atattcttcc aacatccata      420
taactaatgc atacttcata agaaagcaga ccgtcacgga taatgggaga aacattttcc      480
agtcattctc gtgtccacat ttctctcaca cgctaaccat gttagtaaac cgcaaggact      540
gttattaagc aatgaatatg tctgaaaatc gtatgtgac tgttgtaaaa gtgtcatagt      600
accggtcatc gccgcattgt gcactgctgt cagatccgca gtaaataccc gtaacgaaa      660
ggaagagaaa gatgagagaa gatgagattg tcaccgggag agaatacagac gcagtcatca      720
gtgatactat tcgacggacc taacctcgtc cgtaaaatgc aagaatttaa cgaggcagta      780
aaatcagctt aaaacctccc cgcacgctta acgtaaccat ggctgtgcta aacatccacc      840
aagagaggaa acaccgcaca tgaacaactc ttctgaacta cacgtgaagc agagattgag      900
gcgaaaagaa agccacagat cgctgctcct caagtgggta atttattttc cottggaaca      960
aaaatggagg tgtggaggcc aagcagcaat ttcgac      997

```

<210> 7

<211> 624

<212> DNA

<213> *Physcomitrella patens*

<400> 7

```

ctcgagtgc gtagacgaca aaatggaagg atgcgaccag ggatgaacgg gaagagtatc      60
attaatgcga gacccttggg gttgaaggcc acgagtggga cagcgtgcc gagaaaaatt      120
tgaaaatcgc tcatccaga caaaatatct gtgggcccagc cagggtttcc cagccagctg      180
ctctgccgtg ccagccgtag atctgctcat ccgacggcca ctgcgcccc tcttggaatt      240
gtaccctccg gcatttggaa agtgtcagcc tctccctgac gaacatttca cctcggtgc      300

```

ccgggaggcc aggagcgtca gatgggagat ctgacggcgg ggcgaggag agacctgaac 360
 cggcgggcag gggaacgatg tcgttgcttg ttcttctggc tgaggcgtcc atccccctta 420
 cctccgctgt gtgtttcaaa ggccgatata tgcgcttccc ttgcgaccg agctctgtcc 480
 cgctcgctta cttctctccc accgagcttc cgaggttggg cattcccacc cttccttctc 540
 ttctcctctc cttctctgct cttcttctct gttgtctgcg gattaggtct tgtggtcttt 600
 cgagcttcgc acagcttgag caag 624

<210> 8

<211> 1146

<212> DNA

<213> *Physcomitrella patens*

<400> 8

gcgcgcggtt ggctggaaga agagtcgaga agcgatgtgc ggcagcggca gcagcaggag 60
 gggcaggcag tcagggtgcag cacgtcgtcg gggatgatgc gagggacttt gccggttggc 120
 tggggtacag aagcgagggg taaatatagt aagattacgc gcggcggaag gacgcgatgg 180
 ccaacgaggt ggagggggtt gggcggtttt acgtgtacag tatgagactg aactgacgt 240
 tgatcctgcg cgaaccaccg gggctagcgg tagtagatag ttggagcgag agttcgggag 300
 cgttggtgcg gataagctcc ggcgtttgac cccagggtgc aaccgtagtt gcatgggggt 360
 ggtgggggga ttgaaattgg aaccggactt ggagttgaga agttcgggtt gtttttgag 420
 gcagttgaaa gacgttttta agaagtttga gctgttgga atacattgtt accctgagct 480
 taagcagtgt gtagtggcga tgtgtttaat tgtctgattc ctgtatgttg gtgtgtgcga 540
 ggcgtgtgag tgcgtggttg tgtgcttgac gtggcggtta tgggccgtgc tgtcggaatg 600
 atttactgga ttatttggtc cattggtttc gtggactgga gacggtgat gttttagtg 660
 cttgtgtgaa caaggcgggc atgcagatga tgggctcgca ataaagacag ggtcatgtcg 720
 ggtattgccc agatgaaagt ctcttttggg gatgccgata cggaaaatgg aagttggtac 780
 agtcgcacgt tcaggcgtca tgggttgctt tggaagtttg cattggaaga gagagttgag 840
 ggtgtcctgg atgatgtcca cgaggtggtg tttgaatcga tgttgtgcga agtagacctg 900
 agcaccgatg tgtgacaccg gaatggtgag tttgtgtcaa tgaactgtga gcgttttgat 960
 tgaggcagac attccaaggg gatggttttt cggttttgtc ttttaaggct ggcgcctgcc 1020
 tagcctcctt tgtccttcag cgcatgtttg cttgtgacgt ttgcgttggg attgttagta 1080
 ttggtctgga tggaaatttt atcgtttcta tcggcagcaa ctaagtgcgt cttgtcattc 1140
 ccatgg 1146

<210> 9

<211> 2973

<212> DNA

<213> *Physcomitrella patens*

<400> 9

```

ggatccattc aacggaggat aagtatgtag ggtgatactt aggcctcattc attcattcaa      60
ggcgtattta attaactact aaagaaaaaa aggggggttaa ttgggggtgat tggggttatgg      120
aatgaataaa tgaataaatg ggtccccccc ctccccttcc ttccccttcc ctgcattaca      180
tatatatata tatatatggc atgcgggtgct gaggggtgtgc atgtgggggg ggggggtgtgt      240
tgagagtgtc aacggtgcca gccacactct ccggaccctt tccatttttc ctttcctttc      300
ctgcctgtgt cctgtccct gctcccaccc actttccatg cccttgaaca cttcctgata      360
aaggccctcc atccctccct ttcccttctc aaccatttta attctatggc ttaaacaatct      420
aaatcattac attcttatgt actaaaattt tatttataga ttgataattt tcttttaatg      480
aattaagttt gaattttatc tatgttttag ttccacaaga tttgttttat ttattacatg      540
aaacttcaaa agggatttga atatattaaa aatttccatt tataaatgaa tattcgagtg      600
agtttaatta aaattatttt tagcgtatat atatatatat atatagatat ggataaaaata      660
caattgaatt aacctaggtt taatttttat aacaatgttg aagtgcctt catgtagtgt      720
gagtgcagg atgtatttgg atatggatgt acttcaaaaa aaacatgata aataattgca      780
tagtattaaa gtttatgcaa taaagaagct agaaatgact aaaaattatc acaagcttat      840
taactcacia acaaatcaat gatatttcat atcaagtga actgttaaca aaagaaagaa      900
ttacgtgtat atttcatgat catattcttt tgataattaa tggtagggta aactatgaa      960
cataaaatta ttgctctcta caatttatca aaagtataat aaaacaaaaa taaaacagaa     1020
atcataattt atgagtctct acagggatc actgtcaa attgtaagta aagtgtgtac     1080
tattaattga ggggatttgg gtatgccatt ggaatacgtg gatcaaaagc tgaaacacaa     1140
gaattttgaa actcaaaatt acattaaaaa gtttgaaaaa taaacacaaa atacaatttc     1200
ttcagaaaaa aaaaaaaaaa accatcgtca ataatgacag tcaacaaagt cagcatgcat     1260
gacgagctca ttgtatttcc tccaaaaaaa aaaaaaaaaa gaagaaaaag tgggccctca     1320
gttaaatcag agaatgccac atgggtgatg gagaagagcc gatcataggt gatacgtggt     1380
catgggatca tcgtttccat gcgcggaaat agatcgaacc cctctcagtg tctgacgggt     1440
caacacgggt gatcgggtgg acccacctg accagcccaa caaacgcag ggaggaagag     1500

```


gtggcaagta agtaagtccc acgtggattc gagacaaaac gttgtacgaa taatatacga 1560
 agtgagaaaa aaccacagag cgggtggcag tcacgaagtc gcagacacaa accgggctgc 1620
 ttgacacggc gacccggtcc ctgttctgcc gcccggtccg tcgccatctt tgtctcatc 1680
 gcacaagggt ccttttccag tgccttctgc gcgggtccca cctctccat ctgaccggc 1740
 ccgggctaac ccgttccgga gcagatgatg atcgaccgt ctcgcaggct ccttttgtgc 1800
 accgcgtggc ttcgtgattg ggccattgtt gctgtttgct gtttgttgct ctgctttctg 1860
 tgtccgggcg gcattcctga gaggcgattt gcatgcgcag gctcgttgta gaggcagc 1920
 agcgtgagg gtctcgtcta ggcttagtct gcttctatcc ttcgtgctg tcgcctctgc 1980
 ttcacgtcg ccgtctcttc tcaggttaga gcactttcaa gtgttgcca ggactgagta 2040
 taggaaggag ggtttattta tttatttatt tatttattta ttttctgtt atttttattg 2100
 ctggctgatg tccatcttcc gacgcgatcg tcgttttttt tttttgttt gtttgtttca 2160
 ttgtgttgga ggagtgttaag atttaatcgg atgcataggt tgtgtgtttt gcatgcgttt 2220
 agagcgttta catgtgcgat gcacgagctc tgggtgcgtt tagaggccac tgatttagta 2280
 gtttcttggt cgagggggat tagatcttgt accgcaagat gttgctccgg gttgtggtg 2340
 gcgatggcgt tttataatta acatatagtt caatgggtgat gatttaatta gcagtgggtgc 2400
 atgagttagg tacggatcgg gcgattgtgg atccggactc gtgttcaaca ataggctgga 2460
 ttctcttcta ttgcgattgg ccagttctta catgcaatcg ggtacacgat cgctgaagta 2520
 gaacaaatta aactcatcga ctgaattttt gccgtctcct gaactgtcga aatagagctt 2580
 gaaaatttga ttgatagtga ttgtttagtt ctctgcgaaa tcgttctaca taatcttta 2640
 attctgaatt aatctcaatg tttttgaca tcagctgatc gcttgtccgc tcgctcagtt 2700
 caattcgatt gagtattgcc tgcagatttt tcagaaaaat ttaagtaatt tgatagtaag 2760
 aacttgactt cctgtggatt ttaaacagta tagcatatga agtgccagg tttctgaatc 2820
 ctccatttct totaatcgct atttccgaag acttctatac agtatggagg gcgttctgta 2880
 ctgtcctgat tgcgagacat gttttacgac gaaaatttac tgctccttag aactaaaatc 2940
 ttctgaaatg gttgggcagg tcggtattaa gaa 2973

<210> 10

<211> 1128

<212> DNA

<213> *Physcomitrella patens*

<400> 10

agcagtgcga cacatctttt gcttttttca gcacgtctct tagctcggct tattgaactt 60

cgattgctaa cgtttgtggc caccgaatta ggctgctag cgtagatcaa ttagaggccc 120
 atgttgacaga aagcttttgt ttgtaaaaat agctgatatc tggacgcata cgactggctg 180
 atataattca gtgccattca cattatttgt taacaggccc agggttgttt gtagagtcgg 240
 acagcatttc tcgtcggaaat gttggcgccg ttttgtgaaa tgaaagggtga ttatgggtaa 300
 aatgcataca tagtcctgtt gactatggct gagtggataa gatataattc catcacaggc 360
 tagatttcct gcggagtgtg aactgtgacg taaaatcaca gagtgcgtcg tcttagccct 420
 agccccgaa tcatccttta cgatggatgc atgttcggat gttataattt gatttttttt 480
 ttttttcgtt gtttacggat ttttgaccag tttaccattt gttgtttcag ttgtgatggc 540
 ttggttctgc gtagataagt ttgagttgag tataatttcgt gagacgtcct acgccactgg 600
 atatgtatcg ctgaagcaga atactgagta ttgtaattgt atgttcacaga cgtttcagta 660
 gttagtgaca gtggaatgaa gcaacttggc ttttctcttc tatgggtcttg ccaatcgttt 720
 ccgtcgcgag attgagcgta cctgggtcaag ttgtgttatt ggtgagctca atgtgcttgt 780
 gattgggtcaa tttccatata taagtgaagc gccattttca aggagacaag gagctctatt 840
 ctaggcattc accagtcctc ggctccaggg gcactcggga gatgagggtca agtctcattg 900
 ctagagtcgg ttggtgacca ctctgagggt gctcattact tgggatatat tccatggcga 960
 ggtttgggtt tgcatgctat cgacgaagcg gctagaactc tgggaatcta attattttgt 1020
 ctaatccgtt gcaggacgat cagccgtgaa acagatacct atattttaag aatgtttatt 1080
 cttgtgtgcc atgtgtttgt tattgaagaa taatcttcgg tgacgggtg 1128

<210> 11

<211> 3035

<212> DNA

<213> *Physcomitrella patens*

<400> 11

cgagatcggc ctgtaagccc tgtatttggc atggaatatc ttttaacaaa gaagatccat 60
 ctttttagttt ctcataatgt tgaacaacgt acttaaggat ttagaaagtg tgtttcgttg 120
 cttctcttgt tagaatggcg ttatgagcct gtgctgtgtt cttcttttta gctggatgaa 180
 ctgtacaatg tttcacaact gtagecctagt tgatcgtgca tttttgcgtc atgactcccg 240
 gcaagttgat gtgttttttt cttgcttttg aatcccttca acctgtattt ggtggctcgg 300
 acagtaactg ctacgatata cgtcagtcct tagtaagtaa tatgttcctt tttctctcgc 360
 ctacgctatg tcatatttcc tgagatagtt ttttaatttt cgtctgtgtg tttctttag 420

tcctttcact gcgtagccgct atcacagctt ggtcatagag gaggccacat ttccagcgga	480
ccaacttgag gttacagcat ggactgagga cgggcttgat atgggagtc gtcacaaagt	540
ctacaagcac attcaaggag tgcaatttca tctgagagc atccgaactc aaaacgggat	600
gcagatcgtc ggaaactttc ttaagatttt agatagaaag gagacggctg acaagaagga	660
gttgaaacac aaatttttga gagggtttga gtgatgagtg atactgggat ctttttttat	720
gggaaagatt gccagcagca gtaagcttgc ttttggtaga ttcctctccc tacagcgtgt	780
acctcctcga atatgcactc aagcaagcct agagggtgt gctatagatt tctcggttaag	840
acaggggtatt attgaggcat tttttgcgt tccagatgga gctactacca caagtatcta	900
tcctattatt atctttaact tcgatggatt tgccatgac actgaggtac gtcgaagttg	960
tgattggact ttagtgatc acttccagag cgagctatca aactgggtgc tagaggagca	1020
acgcaaggag tgctgaatta ttctaattgat ctcatctagc ctaagttttc cgtcaaaccat	1080
agtgatgttt ttaagttcat ctcgttagtg aaacatctca aagaaggtag accattaaat	1140
tattgcaggg gttgtgatga ctttatttaa tagttgacct cttcaattga gaacgcgttg	1200
ctctcctttt gtatagtttc aatcatatca aagctctatt tgttctctgt accttaagcc	1260
ttgtgtaagg catttaaata atctcttcca cgattaagat ggtagttatg tcgccggttg	1320
caacttccaa gatgtcctaa tgctatagtt ctcatcaca actcaggagg tttgttgttt	1380
tatgtttttg aaagtgcga aggaaattgt ttacttttcg ctttgtgtct gtgtatttta	1440
gaatagtacc ttaacttctt acacaatggg gtctaatttg ttattcttgt gtatcacgag	1500
cgtaatcgg tttggacgtc ggaccctttt aaccaatctc aattgcttct gttctaacc	1560
acgcgtccca cgaatggcag gtcaaatacc gattattgcc cgactctaact cgtgacagtc	1620
actgagacta ataacgggag gtcactatct tgtgacgttc tcgttatttt aaaatctgta	1680
taatggcaat ccctttctgc accacggcga actcatgatg attcttatcg agtcctgctc	1740
accaacttta tcacaagacc ctacggatct aactatgatg accaaaagct tgttctacgc	1800
atgcatgagt cccttcgttt gggagatttt agaattctta ggaactcaca cgttgtccat	1860
aaattttaac caccgggcaa cataggatgt tgacatgtag tcacaaattt agaaaaaccg	1920
acttcaaaag gttgcccacg tagacaaaac aactcgaacg cagaaatcca ggcgaccggt	1980
gaaattggaa cattcacaac aaagcgagaa gaggttcaaa aaaaccgcag agtaaacct	2040
atgcgccaga ggggaatggg agatccacgg gattcggaga tgaaaaggca tcgcgcgagt	2100
aaaaacaaag agtgcgggga gcaagggcat ccagaagagt ttactgaga tctacagtgt	2160
aactcagaaa gggagccact ggtacaaatg ccagctttgc aacgcagaaac gaacgcggga	2220
gagctaacag atccgggctc aaaatctcct tcttctacct ctcaagccgt ccacaaccct	2280
cattctccat tctgcacta ttctcctcaa accagttgca tctgcgggtc cctccatctc	2340

```

caaccctacg gctttcgtgc gaqcttattt gttgcctata ctaaggttaa acccactcac 2400
tttgttgcct atactttgct ttgctatttg gttgctttcg tcttcgcttt tgttctttgg 2460
tttatctcaa gtgcacatgt tctcgcgacg ctgtgccgct gtaggggctg gtgggcttat 2520
agacctgagc accgaggcgt gggtttgctt cgactggctg tggttgttag caagggttcc 2580
tcgtaaggta gttgtgttca gagctagatc ttgtgacggt gatgcgaaaa atgcgttcat 2640
cagagttaag tgatagaggg gcttttcgtg agatctgctt ctgtgatgga tctgctgtga 2700
aagcgggtccg cgttctcctt tatcttcagc tctgtgtctg atgtttggga aatgcaccc 2760
ttggatacgg tgcgattcag gctgtatatt gaatccccga gttttggaaa tctttatgac 2820
ctcacttaat ccgaaagcta atgggctgta ttgagtgagg ctaatacaca tctctccata 2880
ccgcgcttcg gtttcgactc gtcttaccga ccacattgat tcacatgcgg agacatcagt 2940
gttggtatcac ttacagtctg acctaaatag cacgtgtgct acacatagtt tcaatgccag 3000
taacagtctt ttgatgtgca gagtatttct tctcc 3035

```

<210> 12

<211> 1221

<212> DNA

<213> *Physcomitrella patens*

<400> 12

```

gctagtgcac acctgtctcc tgaaatgcta tcacaccttg tcagggtgggg ttatggagtt 60
tatttgtagt agctaagcag ctgaagagg ccagtgcag actgattttt caggggttgc 120
aagggaaatgg ttactcgagt aaagagccag cgctgtogag accttcttgg tgcaattcca 180
tctttgaaag tatgcatcac aagttagatt cgtggctttt gagcttgtcc tcattatttt 240
gcctaccatt tatgtttttg tggatttagc atccgcggcg ttttaagttt tgttttaaca 300
ttctttcttg taggttcgga tagaatgttg gggacatttt atgcttgaag agcgtcttgc 360
actgtcggac tgtaatgcaa tgcttgtgga cctcagcctg gcctgcaata cttgtatatt 420
cgtgaaaaca atcatagcga ctctgtgtta ttcttcccat gtcattcact ggctctcgaa 480
ctttgtcgaa tacatctgat gggcacgcgt gcagaagccg ttctttaacc tcgatgggat 540
ggatttagtac gatttgctgt catttaaac tatttgctat ccgtatttgt cttctgttcg 600
gaaatttggt tagcttggtt ttttatggta tgtttagga aatcagcttt ggtgagaaat 660
ttgtttcata acgacacaat ggaatgatga attaaattgt tgccagacca atatcgtatg 720
tgtcaatctg attcctcaat gcagatatgg ttgtggagcg tctgctgtac ctccttgttt 780

```

```

taaccgccgt atctgaacca actcgaacgt agtttgaaaa atgcactaaa tgatgcatat      840
tcaatcggtc aagtcataatt aaacacgcgg ttttgaaagg tagcaggtgt atataatata      900
aacatgtata tcgcaaaggc ccattcctga cattggatgg tgctaattaa gatctaata      960
accgttcctg gcaatgtatc tatcaagcaa actgaagaca caatgaatcg ttgagtgtat     1020
gtagaaacac aaaacgatct tgtatttcct tttcatgtgc cagagtgagc ctcatcgatg     1080
tacctgata ggactcaact ttgatatttt ttgaagattc ttatgcctga ataaggtact     1140
tggaatcata gttctttgtc tcatggctta acttgattaa gatttgggga tttggaacct     1200
ttgtaaggag gcaatgaatt c                                           1221

```

<210> 13

<211> 3060

<212> DNA

<213> *Physcomitrella patens*

<220>

<221> misc_feature

<222> (1)..(2301)

<223> a, t, g or c

<400> 13

```

agactctact aattgacaag tatgtgacta caaaaggcca caagactctc tctgcactat      60
aactataagg ctcatatttt ttgtccatgt agcttgtata tatatatata tatatatata     120
tgtatattta aatcaaaaata tttttattca aaaacaaaat acaataaaaa accaaaaaat     180
attttaaaaa taaataaaaa attattaata cttttatgaa gctattattc aaattttatt     240
ttaatttcta atttaagatt tattattttt tcttaaattt attaaacttt ggaattttatt     300
tttaaaataa ataacaataa aataatttat agtggttttta ttgataagta aaattaagag     360
ctaaatttgg atcattatta caaagttata atacttaaat atttattgag atatatttaa     420
atttaattaa tatttttttat taagttatat atatatatat atacacatat tatgaaatta     480
tttaaaagaa gttagtagac ttttaaatat tttttaccat gttttaattc tagtacaatg     540
tatttaaatt atcttattaa gttatggaaa agaagttagt aggttattaa atgttttgtt     600
agattggttg taaaggtttt atgataatct tgtatgataa ggttgtttag catagtttat     660
tttgcttaat taaaaaaaat tacatcttgt tacatttaaa tttaaaaaat acatactata     720
cacatatctg tatttagatt gcttttacia tttttatctt tttgtttttt gcatatttca     780

```

aagaaagccc agcatgtgta taataatttg tataaccctt agaaattaat aatatttaag	840
taaataatnc ttattttataa ataaattact gtttggtttt taatncaaga atttaaaaga	900
ccaatttggt tattccaaag taatagtagc ncattaataa aaatccttca aaaatgaaac	960
taaacaaacc aatgcatctc aaatgaaaag gagaagaatg atcttacata gacanccaca	1020
aggagggaca tgacaactta attagactat gggtttagga acatcaacca ttccctacta	1080
ccaaaaaagc ttacatgatt ttaaataaca caatattcct tgtgactttt gtgcattatt	1140
gaggatatcc atctatctag attttggaac atgttttact gcccaaattt caataagaac	1200
cattcacata ttttgaaaca catttgatac actctacatt catgtctaga gtataggagc	1260
ttgggtttta gattagggtt tcagattagg gcttgccagg ttacagttaa aagttaggat	1320
taaagattta gatggagtct tggttcagag agaaaaaagg atttggggta aagtttttat	1380
gaaagagaat catcgcccaa acaagtagcg ggactgctga atgccttttg caatgaatga	1440
aaatttatca acgtccgtca atatgtacaa gaccatcaca taatggcccc cctgaccaca	1500
atttgaaaaa cacacacttc ctgcctggaa ccagtaatac aagtcattgt aggggagaga	1560
gagagagga gagagagctg tagctgcgta taataagggc ctgcgagatt cagtgcctacg	1620
tcgtatggat acaccgtatc acttctggtg tacaggttac taaatactac tcgacacggg	1680
gcggggccgat ctgcggaacg cgccggggcc atgtcccagg gccctaggcc cgccatattt	1740
ctctcgtcca ccggggccta cgcaaacttt cccttctcac tttcccagct cacgctctct	1800
gttcaacgca caacaacgag tagccgagac gggttcggag cacaagtcac ccagcccg	1860
cccgaccgt gcccgctctg cgcttatctc tctccgctc tgggcccgtt tcgctcctgt	1920
ccttggtgtgc tctgtctggc ccttcaccgc gcttcattgc ttcttcgacc gagagcctct	1980
tagctccgtc ttgttcacca ctgccgggc actccgacc cttgcatact ctcttctgcg	2040
gtgcctgctt ctcccactct cctgcacggc tgccctgttg tgtttttttt taaaggctcag	2100
tccctctatc acgtcagtggt ttgcgatttc cgtgaagtgc tcagggtttt ttttgctgcg	2160
aactgtcggg ggagatgtgc ttttgtcgt gtttgatgtg tgtgcgggtg agcgatgggtg	2220
ggtttcttgg aggaggagg agagtcttat tttagtcttg ttgcccgggtg tgctcggggc	2280
gcgaatgtgg gtttatggta ncgcacagg ctgcgtttgc gatatgtgtg tagaacctg	2340
tgccgagcga tcatcataat agtagtttct cgtttcggag gggctgggct tgtcaagtgg	2400
aacgcagagt cgtagttttg agagttccag acgcgcacgc cgcagctgta gtgagatgta	2460
gcttctcggg gtgttttagtc aaggtttcgc ttttccgac tcggatcatg tttacgtccg	2520
tcctttaagc tggatctctt gttctttaca gaacttggtc atcgccctga ctaagttgct	2580
ccagtggttg tctgaagacg acaagcctct ttctttcttg aatagtaaga agaggaattt	2640

aatctgaagg cttgttttgt acagtagttg gtcgttttatt ctttgatgtt taacttagcg 2700
 tttcgttgta cttctactaa tgtactcttt agcttgggtcc gaggctatta tttaatgagt 2760
 catgccctga agtcgggaac agcgggttgc acctacaatc atatggatat gaggattcgg 2820
 gtgcagtatt aacttgtagt cctttgttca ttgtttttga ttgcgggggt tagctggtgc 2880
 aactgcctga atagcaagca ctgctttccc tgcgttcgaa tcgtcatcaa cattactatt 2940
 gtgtaatcca catggctaca gctgctgtaa ggttctgcgt caagggcggt cttcaagaaa 3000
 taacctatgt cttccttgaa attaaatatt ggtggttggt gtgcaggtcc gtattaaata 3060

<210> 14

<211> 4124

<212> DNA

<213> *Physcomitrella patens*

<400> 14

attgtccatg tgcactacta aacatttttc agcacactcc cttccccggg attgagctct 60
 tgctgtgtag aactctcgtt gcaagtatca gtgattgcag actttgactg gtgagcacag 120
 attcaacaga ggtttatttc gcagatgact atggtttgta aaaatagcag atatctgggc 180
 tcaattctaa cggctggtat atgtcagtac ctataaaactt aactgtttgt agctctagat 240
 cgggtgtgga aagtccgga ccaattcttg tcccttttcg tattaataaa agggatattt 300
 atttcatata tcgtcttttc cttttgtcat cacatctcta tcoctgtgcat atcatggttg 360
 tattctcagt cgtaatggtc tttcaagtgg aatgatggct ttgatgatgt gcacctggtt 420
 gtgtctctgg gcgtcatggg cttcacatga gctgcggtta cagatcacgt ccagcctcac 480
 acaattaact aggcattgctt tccatttcct tctgacgtaa atgacaggct ctgacaacaa 540
 tgcctggcac ttctgacgt gggaccgctc gattgggtgc gaagtcgagc aaaattctaa 600
 cctccacaac tggatatcgtg aatattctag cctcttcctg agaacagtgc cggtcgatct 660
 cgaattacct cgtaatagtc gtcaggcatg tatgtatgtt taaaaatact ccatgcggct 720
 aaattatttt ttaaaattta tctttggatt tgaaatgaat ttctaccttt ttttacttta 780
 agttacgagc tgcgattcca actaatgaag ttttacatac taatcagaag aatgtcgttt 840
 tttgaaatta acaggttaag tgttttgaag aattaaagta tgatgattcg tcttttttat 900
 atcaaatgag ttttgaatga ttcgtcgttg ctttttttaa atcttggaat gaattgcgtg 960
 tatgtgacgt gtatggaaag atacaaatct catgtagtcg agtacaagac aattacacct 1020
 cttatgttta tggttcattt gtacatagtc tacgttagct taaggtcacg gtgtgtgagt 1080
 atagtatatc tcattaccta atttgaagtc cagtaaatgt tagttatgtt accatcgacc 1140

agttatcacc gatgttgctg agaagcaatg tgaatcttag gaaacgagtg atatttgaac 1200
 tggatattaa ttcacccgta atctataaac agacatgctc tactagcggt aaaacataag 1260
 ctacagcaca aaatgatcta aaaaaatgtc atcaatcata agctgtgtat aatacatccc 1320
 atgaatatca acagtatgag tttgggtggt tgtgcacacg taaaaacgaa cctcgaatc 1380
 gaaatgtgta ttactgaatt cacatgcaaa tgaattgttt ggatcattta ctgattaggt 1440
 ctgtactcta ttaatgaaac atataataga ttttaagactg tccagtcagt tttgaattaa 1500
 gccttgggat ttgtggtctc ttctctctcg gccactaaaa gtttaattca cattgatgtg 1560
 aaagaaaaag tcacaactca gccttcgctg tgttagaaaa gctgcacgtg tgaggacttc 1620
 tcaggcagcc tttccttttt cagttgagtg tcgaagtagg agcacacgtc gtcggtaacc 1680
 ggctacagga ggtgtgcact gtccctttac cggatgtggg aagtcaccct atcctgagta 1740
 tggctcacac ccaacgttgc tactccatcg cacagacagt tccacatgat agactgctcc 1800
 gcgagaagcg tcactctcgt gcggtctcac ggcttctgtt gcggccgatt cagtgcaggg 1860
 agtcgttttc gagcttgca agtggctctc ttgtcattcc cctgcttctt ccggcggcca 1920
 ttttgatgca gaattgcgaa ttctgcagaa tatgttgaga actcgtcttg ggggttttcg 1980
 gatgaggagc taaaacccta gagggacgga caattctgtg gagcttgctt gtaatcctgc 2040
 agtacaatag aataatagag cgacatgtcg acgctttcga ctcatgtctg cgtgtcgtca 2100
 ctgtcatcag tgtcgacagc gtcgaatgtg gtggcaaatg tggctgtgag gccgtgtatg 2160
 atagtatctc ttctgccggt tgcgagaggg ttgtgctcta ggaaggggtt gatgtcgcgt 2220
 ggacctctcc gaagacattc ttgtatgaag agtgtttcag taatgccgag agcttctctc 2280
 ggtcaactgc ctgacctga acaggtggac ttgtacatta atgcgttgct ccagacgccg 2340
 gacgccctgc agggattgct ttccgcgacc gaggggctct ttttcacatt ggcgatgtt 2400
 gctgtggcga ctgatcccag ccaggtcacc gacgctgtag tgcagaaaca ggacggaggc 2460
 tggcttgag gtgtctcgaa ttctcttgag atagctctta ccgtaagctc tttttatttt 2520
 tatttttata tatttttggt tcttttttga actgtgaatt gtgtatattg ttttctctg 2580
 aaattttctt tcagaatcta ggtggtaaaa cattctgata cttatgctta ttgcacgggt 2640
 tatctaattt actaagattt agtgtgaatg tgatgatata attttactaa aatttaagat 2700
 ttttctaaaa ttttaattgca gctagtgtta tctttcgagt cgatgctaaa acattcctgt 2760
 tgacacgatg atcatgaaag ttagatgtgg ctttaataaca aatgcaggaa ttaatgaatt 2820
 ttattttattt attttttttt gcagtttttg aaggatacca ttgctaagct aggcatacct 2880
 tattcgtatg gtttcgcaat tattctttta actatttttag tgaaggcagc tacttatcct 2940
 cttacaaaaa agcaggtttg ttgttctact gattttctta ttttgtgctt tctttctttc 3000

actttttgcg tacaaatcat ttttgtgata tactaattta ttgtgtaaaa ctaaaagaat 3060
 tactatattt ttcagctaaa tatctgtcga tgtcctgtat ttactcataa gttttatggg 3120
 ttttaagatag taccagaca ggactgagtt ccattggtag gtcagtactc ctgttagatt 3180
 agggaggcct ctattgttgt atatctaatt gaaagtgggt atgtttaaca ggtagaatca 3240
 acttttagcta tgcaaaaactt acaacctaa agaaaagcta ttcagactcg ctatcagggg 3300
 gatcaagagc gcattcaatt agagactgca agattgtata agcaggctgg agtcaaccct 3360
 ctgcgagggt caattttgtc gaagtctcga aagcattaat gttagaatg cttgcagatc 3420
 actttccggt ttttgacgga cacaaaatac agtcgaaggg actaatactc aataacttgg 3480
 ttctgtatgg tagctcataa gggttgtgggt ttatgatttt acagggtgtc tgcctactct 3540
 cgcaacccta ccagtatgga ttggattgta tcgtgctcta tcaaagtgtg ctaatgaggt 3600
 attgcatcat gaactggagt gcttgaaaca gttgtccttg tgcggcatgt tgttccacct 3660
 tagtttattg tgaaacatag gcgtcattag acaatccaca tttagagtaa tacaggaagg 3720
 tcttaccata tattcatctc aaagagggtc aacagacatc gtaatgcaa gttctgtaca 3780
 ttttctcttg acttcaacgg gagaatatct attcttaaat gagatatttt ctgtggtact 3840
 ggtattcaag tatgaatgta tgtaactatg atttacttat gcagttctgg ctttgcaggg 3900
 gctcttgact gaggggttct tctggattcc atccttggca ggcctacaa cgattgctgc 3960
 tcgttccagt gggagtggca tttcgtggct atttcccttt gtggttagtt agtcccttca 4020
 gatgcttgct ttcgttattt tttttccata tcaaagttaa tgatgctggc catcacgtaa 4080
 catatagtga atttgttgat caaaatgggt gtccatggaa gctt 4124

<210> 15

<211> 3053

<212> DNA

<213> *Physcomitrella patens*

<400> 15

ttgttgaatc atgttaattg ccaatgggta ttaatgacca tcatattgta cctggaatgc 60
 attggaaaag taatgttcca ctaaaataaa gttgatccac caaatattgt tgtctagtca 120
 tatcgacaaa tagattcaaa ataaattaaa attaaaattg aaaatgtata aacattggca 180
 tgaaaatgat attaatataa aacaattcaa aacttatata attatttaaa atacattagt 240
 caccgggtta aaggagacag actgacagaa ttggattgag gcaatcagta gcaactgcaca 300
 aataaattta acatgaaaac attatgattg ctaatactct gtttgcattg acttctacaa 360
 caacaaaaac aaaaaatata atcaaacaaa acaagcaaac aataaatgat tttagatttt 420

gcatgatata agcaccagag ataattatga ccatgtgata aatacaattt ggaccattta 480
 taticctacaa aaaaaagaaa aaagaaaaaa gaaaagtttt tgtttgtatt tgatatcttt 540
 attttgttac caaaattaga taattgcaag ccttgtattg tctgagatgg aatgtatatg 600
 taacacattt gagcaaaaaa ttaaattaaa ttaaattaaa taagattttt ttatatatag 660
 taaattgtaa aattgaccca aacatttact aaatcaaccc acccattcta accatcataa 720
 gaagaattcc gctatcaaat ccaggttggt tgaaaaccaa tgaaaaaatg gttggcttct 780
 caaccaatga taatggatgg gttaatttaa taaattcatg ggtcaattta aaaattccat 840
 atatataatt aaaaatcaat tgcaaaaaat attttgacac aatcacacgt gttttgaaaa 900
 toatacatgg acaaaaatac aaagagattt tttaaccaat attttggaac cacatttagc 960
 aagggtgcca atgcccttcg ataccacaa gaacacacct tactttgccc atatttaccg 1020
 atatatgctg cagtcagtta ggggtgaatc cctgaggag gggggctccc gtgtgaacaa 1080
 agtccaatgt gggggccgcc aggattagg caccaggtgt gaacgaggct ccacccgagc 1140
 gagagccagg aatttgaaac tggcatgga aagggggttg gttccacctg atggcacctg 1200
 cccaccacca ctagtaaaga ttcaatgcc accacactgg tttttgaata taggatcttc 1260
 cttctccttc taattcttct cttgatggat gaataatata accgatgaat gagtgggcac 1320
 atggacgggc ctgcgccct ctctactctc tgcaatacat tacaaaatac atacatgtat 1380
 acatagggat ttgatgactt caatacatc aactacaaa accgggtcag gaggggggta 1440
 taaccaggca agcccgagt ggggcagta acaatacac acccccaa at cgtatgggcc 1500
 ggacacgtct gagcgacacg cgggtgccct gccctcctgc ccttccctc gcccttttc 1560
 tctcgaccgc ctgtcgccg cccggcccag actcctgcca acctgggaac caacccccct 1620
 ttttggtgag tgctcttcac ttccctcgca ctgcgtgctc aagttgaggg agggagggag 1680
 taggagtagt cactcaccg gcctggccc gtccggttcc ggtccgagg ggctgcgttg 1740
 cgcgaccgt tctcgtggg ttatctctg ttctctatcg ctgcgtcttg tgcacgtac 1800
 tgctcctact ttttccatt gttgctatgc tcgctgccct gcgctgcttg gccgtccgtt 1860
 gtgccccctg ctgctcaacc aagcactga gttcgtccc gcattccttt ctgcagcacg 1920
 gtgtatctct ctctctctct ctctctctcc tcactgttt agcgtggtg ccggttctct 1980
 taaggtgaga gttctgttc tatcgggtgt ctcggttttg gtatgtgtg tgaccgacga 2040
 tcggtttggt gtgcacggtc gctggatgta tggctcgtct tgttcttggt tagttctgtg 2100
 tggcgattaa cgtgttcttg gaggagtatt tttggccttt gtctgctgat gcgctcagca 2160
 gcgttgctgt agtgtaggct tgtgcttcac atgagcgtgc cgcgctcta ggcgtggtgt 2220
 ttgagtgaa tcttttgccg aatgactata gttattgatt tcttggtatc tgaagatctt 2280

gtgctgagat atgtggtgta gggattcgag aagtgcatac cccttggtgt gatgaacagt 2340
 ttccatttga tgtggttatc atactttgga gccttgcatt ccggatcgtc attagcttca 2400
 tctacgtggc tggatttttc cgtcaaccgt aggctgaagt gccttaaggg gttacatgtg 2460
 ctgagttgac tacatgtaac aatggcatgc aaactgattg cgtgcacttc atacttgtat 2520
 tcagttcggt gtagagtccg ggatatatgt taggtagaat aaagaatctt atctctcggc 2580
 attcgaataa aaatttcac ctttttgaat gcaccttggt tgaaagggtc ccccatgcc 2640
 acggttgact gagaacaatg tctgcgcac agttactgat ggtcgcacct gttgtcacta 2700
 atttgagtga ttaaggtttc ctaccggctt tttcttttcc actgatttag tttattcttc 2760
 atcaagttta caaatattgc tctgtatatac acggtttttg ttagtctttg atgtaatcat 2820
 attacctggg tttattatct agtgaactat gactgatatg ctggcgcata ttctctact 2880
 taatttgacc ttattagaag atgttcgtac ttagagtacc tttacttaa tgtaactgaa 2940
 tctatcattg ctttcgttct taatcgtgct acaaaattta actcattctc tcgttaacta 3000
 atgtttttga gcacttgac tgtttttgaa ctctgtagg atcattctaa aaa 3053

<210> 16

<211> 1879

<212> DNA

<213> *Physcomitrella patens*

<400> 16

atctgtactg cacagtttta ctttttcag gcttgcattt tgctgggatt gagttcttgt 60
 tttgatagaa ctctggacgc aaatgtcttt gactgcttag ttgggctggc gagcacacag 120
 taagaagtgg tacatgttgc cgaaactatg gatttgtaaa aatgaaacgt atctgggcgc 180
 ataacgaact gcttatatat gtcgctgtct gttaacttca atctctacat gtccagatcg 240
 atgcggtaga acccgaccat tttttgatcg atgtttgaac ctttttatgt taaataaaag 300
 gtacatggtt ttcagcgcac taatcatatt ttttttggtc actatggact tgatgtacac 360
 cggatgttac agctcagttc tacttcacag ttattcactg acttgccctg aaaaagtcgg 420
 agtgcagatc tcgttggtgt ttggtaatct ggttgccag tctcagagct ctattttttg 480
 atgaatccag ttgattggca ctcaatgttt ttttttattt tttactttta tcatagtgtc 540
 aagggtgcta cgccaggaat gctgtgaggc acattctacc cgtatgaatt tctcgttcg 600
 caatagctgc aagctcaatt taggtttttc tgagcaagtt gtagaactat cgtgtactct 660
 caccagattt cagcctctca gtgctgagtg ctttcgtcac gttaactaat tgtggaagat 720
 ttggaatcat ggttgcaccc cttagtttga cagaattcac agtcgttagt tgacctctct 780

atcttggtcc accatatgtc aacctgttca agagggctgt gctcggtttag gtaatcactc 840
 agaagtttct tcttacagaa aacttgtttt gtgggcatca tctacgtgga agaattgttt 900
 gagcattaaa tcattcaaca cttcagtta catgaagtag gttggaagca gtgccttgaa 960
 gagatccttc acagaaagcc tctcaattct catgaagtct gcatctaact tcttttgaag 1020
 tttgtacacg tgtgggcaga attgaagttg gttttgtggt gtttgaaaca actgtaattt 1080
 aataaatccc aaacaagact aaggccatct aacgttttca catgttttaa aaaattacat 1140
 tgaactttgg gctaccgtag ttttagacag atgcaattaa aaataaaaag aaaaaaatga 1200
 aaagaaaaaa gtcttgtttg ttttagttgt ctgttttgta cagttttgtg acctatttta 1260
 gagtgtcatg tatcgaacat ttgactcaca attataaggt tttatatattt aaatgagtct 1320
 tgttgtcttt tattttattt tgttctacat tctgtaatat taaaacttct attgaaaaca 1380
 caacaaacat ttaatttcaa gtttttcaaa tttatatatg catattttgt atgtaaattg 1440
 tacaaatggt cataatgcaa attgaaatat ttaatgtaag attatagcac ttaaacctga 1500
 tccaaaagat aataattttg ggcaaataat taaaattatg atagacaaag tttagaatgt 1560
 tgtaataaaa atttatggta agtgctaaag tatgtaaaac aaatttcata aagaattgct 1620
 tgtagcattt tcaagagaaa aaaataaata cttacgacta tttttaaaat gacacaaata 1680
 gtaaataaca atatattgat gaggatatat atatataatc aaaattaacc attagtgatt 1740
 tttaacctgc atagtattaa tgtatgggac cgcaaggtag acacctacct ctactggata 1800
 gcacctctca tatacacaat aaaactttta ccttgctaaa agtccaaggg aatttacaaa 1860
 agaaaattctt ttaaaaaact 1879

<210> 17

<211> 1823

<212> DNA

<213> *Funaria hygrometrica*

<400> 17

ctttcgtgtt gcctcaagag tgccctcgca agaaagaagg ttccagcaac aactagagaa 60
 tgggtacagc attcataaaa ctacagataa ttatccttca aataagtaag aaaaaagaag 120
 gaaggaattg ataaataagc aagaaattaa gcaaagcagc cactcggcta gacaaaagag 180
 actgcacacg ggtggccaag gaaagcgccg gtcatagggg atatgcggtc atggggtcac 240
 tgtttccggc agccggaatc gattgcaccc tcgcagtggc tgacgagtca gaaccgggtg 300
 ccaagtggac ccagctcagt cgcgggcagg ccgaggtggc accgaagcct ggtcaacgtg 360

gaatggatac gaatgtactg gatacgagat acgaatacga tacagtagag aaagaacgcg 420
 gcgaggggtgg cacgaattcg cagacacaac cgagtcggcc tgacaaggcg ccccgccctgt 480
 tctgccgccc cttccatcac ccgctttgtc tcattcatcc acggctcctt tttagtgtct 540
 ctgcgcgggt cccaccccct ctactggac tcgagatgcc gccctgcgct gcctgactcc 600
 acctggcccg gcccgaccg ccccgaccg ttccatggca gatgttgatc gccccgtctc 660
 gcagctcctt ttgtgcaccg cgtggcttcg tacttggcca ttgttgctgt tgctgttgcc 720
 ggtgctctgc tctgtcttcg cgaggcactc ttgaggcgat tttttttgta gtagcgcaag 780
 ctcgttgtgg agccgcgccc agtaaatcat ctaggcttag tctgtatcca ctacctccg 840
 ctgcgatcac ccctgcttcg ttgtcggcgt ctatttctca ggttcgagtg tttctgagtg 900
 ttggcgagga ttgagtgtag gagcgggagg ggtttgctgt tgtttttgtc gctggcggt 960
 gtcgatcttt cgacgcgac gcatttttct tttgattgtt ctgttttga gaacggaatc 1020
 ttttgattgg atatatagat tgtgtgtttt gcatgcgttt agaacgttta cacgggcgat 1080
 gcatgagtcc tgggtgtcgt tggaggccac ggatttagta gtttcttggt caagggtggt 1140
 tagatcttgt actacgagat gtttctccat gattgtggtg gcgatgactt tgtatacttg 1200
 acgtgtagtt taatgggtgat gattcaatta tcagtgggtc atgattttgt tacggatcgg 1260
 atgatcctgg atccctgatg attctttttc aagtaggttt aattctctgc aagcgcgaac 1320
 ggttggtcgt ctcatctaa tgggtggcatg atcgcttatt aaattacgtc gactgaattt 1380
 tctccgtctc ctgaattgtt ggagtagcgc ctggaaattt gttagatgga gatttttcca 1440
 ttatccggga aattattcta ttaattcttt tagactcact cgctcataac gcatattgaa 1500
 ataaaccaca gatgattgct tgatcactta ttcatttgaa tttgacagaa tacttcccct 1560
 tcctgtttcg gtgaattaaa ttatttcgat atttagaatt taatttaata ttatttttac 1620
 acagtacaac gaatgcaaag tggaggagt gtcaggacaa ctgaatccct cagtttttct 1680
 agtctatatt tctgaagact tccacacaat atagtagacg ttctgtgcta tcctgactgc 1740
 aagacaaaat ttacgacgca aagtaacatc tcctttttta atctgagatc tcttcaaagt 1800
 gttgggcagg tccgtattaa gaa 1823

<210> 18

<211> 419

<212> DNA

<213> *Funaria hygrometrica*

<400> 18

aggagtgtta cacatctttt acttttttca gcacgcctct tcgctcggct tattgaactt 60

cgattacaaa cttgtgtggg taccgaacta ggccggctag cgtagatcga gtagagggtcc 120
 ttgttgcagg aagttttcgt ttgtaaaaat agctgatatc tggacacata cgagtggctg 180
 attggattca gtgacattca cattatttgt taacagggtcc agggttgttc gtagagtctg 240
 gccccatttc tcgtcggaat gttggcgccg ttttgtgtga aatgatgggtg attatggtta 300
 aaatgcatgc gtagtcctgt tgactatggc tgaatggata agatatattt ccatcatagg 360
 ttagatttca agcggagcgt gaactgtgac gctcaatcac agaatgcgtc gtcttagcc 419

<210> 19

<211> 1333

<212> DNA

<213> *Funaria hygrometrica*

<400> 19

ggatccgaga ggaaagagag agaagaggga gcgactcatc tagccaggcc cggtcgggtc 60
 ctctgccctg cctggcgaga cccgttctcg tgcctatctg tggttctcta tcgctcttgt 120
 gcctcgccct gcacctcctt ttcccattgt tgctgctttc tgccctgtgc tgettggccg 180
 ttcgttgtgc cctcacctg tacactctcg cagccaagca ctgcagtggc agttcgccctc 240
 cgcattcctt tcgtggccgc gtatcccccc cgtcatcttt ttogtcgggtg acagttcttt 300
 gaaggttaga gcctctgtcc tgctgcggtt ctgcgtgtgc ttgtgttgtg gccgacgac 360
 gggtttgttg tgcaaggctg ctgtgcgcat cgtcttgttt agtattgtat gtogattact 420
 gtgtttaggt agcagtggct aagctttgtc cgctgatgtg gcaccaacg gcgtcgctca 480
 agtgtaggct ttttctttac acgagcttgg tccgcgttta tgggtgtttgg atgttacttt 540
 tttcccgaaat gacgatatgt tgtgatttct ttacaacaag agattttgtg acgtgaactg 600
 tagtttgtgg attcgaaaag tggtgtttcc tcgtttttga tggacattac ttatgccttt 660
 tagttgtcac ggttggtggc tttgcattct tggtcgtcat tagtttcac cgtgctgga 720
 cattcgctac catcccaagc tgaagtgtg aagttgattt catatgttca gtttgctgtg 780
 tgcaccagta tgagtcaaaa ctgattggat gtccttcaca acttcattct ctcatctta 840
 aagtcgagta caaatcaata ggtacaggac tcctatattt tgggtgttccg ccatagttat 900
 cgtctttcgt caaaattacc ttattgagag gacttttcct tgcaaagggtc tcatcgagac 960
 caatctctca gagtcagata cctatggctg cagcagaaat ctctagtcaa tgtttctaag 1020
 ctctcctaag gattttcgt ctttcatcag atgtattcta tccaaactcca agttcgcaac 1080
 aatttcttca tacatcattg tcttctgggtc tttctgttct gatactgcac cgattcattt 1140

taggatctta taatccgtgc ttgatgtgog gatatgtgaa ttccctgagt gttcacctca 1200
 acgtactcaa agttgttcta ctttcagcat ctttcagcca atgcggcaga tgcgatcact 1260
 tccgaggact ttaaaattct gtactgtttc tttaaaacgc ctttttcgat tctatgcagg 1320
 atcattgtaa gcg 1333

<210> 20

<211> 3289

<212> DNA

<213> *Funaria hygrometrica*

<400> 20

atgcatggca aaacatcccc tgtcttccat gatgagaaag gcgaacctgg actgcttgat 60
 ggtcttccca ggtatctcat tgtgcttcgg tagttgttga cgtcttcact tctgcttctt 120
 tcgcttcttc ttcttcttct tcttcttctt ctttctctct ctctctctct ctctcccaaa 180
 ccttccttct gtcttccttc ctcttatttt cctatgtcaa tgaagtttag cacctcctaa 240
 aatttttgga tgctgttttt taaatagaag ggacgggatc aaaggacgag tgagtgtcgg 300
 cttttgcatt gcttccgttt tataacaacc tattaaggac gtagatcgtg tctgtaaagt 360
 catctcttat agccttttat agtcttttta agagagaaga gccacctctg agtttcttat 420
 agattcggac aagagatgtg acgacttagg aagtgtcttt cggaattttt cttgtgataa 480
 tggcgttgca tttcttgctc tgtcttattt ttaactgaac agtatgtacc atttttccgt 540
 atagtcctta ctttataata tgtcctcttt tctttgcct cacttctac atattctttg 600
 atatgtacta ttaactttcg ctatctgttt tcttgtagtc ctttcacgcg gtgcgcctat 660
 cacagcttgg tcatagagga ggctcattt ccagctgacc aactcgagat tacagcatgg 720
 actgaggacg ggcttgtgat gggggttcgt cacaaagtct acaagcacat ccaaggagtg 780
 caatttctac ctgagagcat ccggactcaa aatgggatgc agatcgttgg aaattttctc 840
 aagatttttag atagaaaaga ggcggctgac aaggaaggag ctgaaatgaa aattttggag 900
 agtgtttgag tgatgagttg tactggtata tcttttcttg tgcaagattg ccagcatttg 960
 tcagcttgct tttgttagag tctgacccc cagcgtataa ctcttgagt atatgcccc 1020
 gcaggcctag atgtgctgc aataaccttc tcggtgagac agggtagttt ttgaggtatt 1080
 tttgcacttc cagatggagc tactactaca aatatctatc cttatcttac gttaaactac 1140
 gatggaattg ccatgatcac tcaggtacgt ttaagttgtg attggacttt tagtgattac 1200
 tttcagagcg agctatcaaa ctggtgcttg gaggagcaac gcaaggaatg ctgaattttt 1260
 ctaatgatct aattcagctt aagtttttcg tcaaacttag tgatattttg aagttcatct 1320

cgtttagtgaa	acatctcaaa	gaagtacgcc	attaaattat	tgcagggcctt	gtgatgacat	1380
tatttgatag	tttacctctt	aaactgagaa	cgcattgctc	tcctttgtat	agttccagtc	1440
atttgaaagc	tctatttgct	ctctgtaact	taagccttgt	tcaaggcatt	taaattccct	1500
cttccacgat	aaaaatggta	gttatgttgc	tggttggaac	tttcaagata	ccataacatt	1560
gtggttctca	ttcacaacgc	aggaagtttg	ttgacctata	tttttgaaag	tggcgagtga	1620
aattgtttac	tcataccttt	atgtgtgttt	ctagtatgtc	acttcaatte	cttccctcaac	1680
tgtgcctaata	ttttcatctc	tgtgtgtcac	gagcgtaatt	tggccttagac	gttggaacat	1740
tctaaggttc	cagtaaccag	ttttcattta	ttatTTTTTaa	attcacagcg	cctcaagtaa	1800
tgaaaggaca	aacgccgatc	attgcgcaac	tctaattgtg	acggtcttca	agacaactaa	1860
cggcaggtca	ctctcttgtg	atgttctcgt	tgttgtcaaa	cctgtataat	ggcaattcat	1920
ttcgacatca	cggcaaactc	atgatggttt	ttaacgtgat	ttgctcacca	cctttcattc	1980
aaagttatca	ccgacaccct	atgggtttta	ccatgttatc	tgaaagcttt	ctctacgtat	2040
gtatgaatct	gctcattagg	gtgaatttgg	aacttaaaga	atctcacacg	atgtccatga	2100
attttgttac	tggacaacat	atactgttga	ccacatagat	atgcatgttt	agaactgcaa	2160
aaaagtttgt	tcacgaagac	agaacgacta	gaacgcagaa	tacctgcgat	cgggtggaatg	2220
ggatcatttg	cagtaaagct	agtaaaggat	cgaatagac	gcagagtaaa	cccgatgcgt	2280
tagaggggaa	tgggagatcc	acaggactcg	gagagaaaat	gcaaccctgc	gggtaaaaat	2340
agagaacgcg	aggaggaagg	gtagccagaa	gagtttcacc	gggatctaca	gtataagccg	2400
caaagggagc	cacgggtact	agtgccagct	ttgcagcaga	gagcgaacgc	gagggagcga	2460
acagatccgg	gccccaaatc	cccttcttct	atctctcaag	ccgtccacag	ccttcattct	2520
ccatcctcgc	actattctcc	tcacagcagt	tgcatttgtg	gttctctcca	tcttcaaccc	2580
ttcgactttg	gtgcaagccc	gcttgttatc	tatcccaagg	tttcacgcac	tcccccttc	2640
gctgtgtgtt	tcgttgcaat	atTTTTTggct	ttagtTTTTa	ggtttataca	tagtgacat	2700
gctctcgcaa	aaccgtgccg	cttcagggga	tcgtggttct	gtagacttga	gcacagagat	2760
gcgggtgaac	tcttagtggt	cgccgctgca	tcccagagt	agttatgcta	cctaaagaag	2820
cgtgctcgta	cggtcgatat	gtttagagat	ggatatttag	acgatggtgc	gtgtcctgcg	2880
gtcatcagag	taggtgaagg	gatttttctg	aagatctgct	tttgtgacgg	atctgcaatg	2940
caggaggtct	gcgtctttct	ttttcttcag	cttcgtgccc	aatgcgtcaa	atgcgcaccc	3000
attgcacaga	gtgctattaa	ggcggcttca	tgaagctccc	agttttgtga	atcatgttaa	3060
cttgtccact	gatcagaacg	ttcgggctgg	catacgtgaa	gcgaatacac	atTTTTctac	3120
agcatgttcc	ttatTTTtagt	cttcatactc	actgcttoga	ttgcggagg	gcctccatgt	3180

tcgaccacat cttcacacgg ggcttatcat ctgacctaaa tcgcacgtgg cctctgtatt 3240

gtgtcaatgc cagtaacagt ctttttgatg cgcagaacat ttcattctcc 3289

<210> 21

<211> 937

<212> DNA

<213> *Marchantia polymorpha*

<400> 21

catatgcgta cggagttgtg gtccccgatc gccgtagttg ctggttggtgt ctggtcacag 60
 aggattcttt gcttcgcttc ctaatgtagg tggccagggg tggatcgtct tcctcctacg 120
 cttcgtttg acacatacat ctggatcttg agaggaacac gtgaattaga gttacatgcg 180
 gtattgcgtc atctttgcga ggtaacggcc gcgccgcaga cctagcgggt gcttctgcgc 240
 gactcaagga atcttcctc tcctgctcca tcactggaat gagagttgca gtctgatctt 300
 tgggaaatct ttcattctgt tgaccatcga ctctgtcctc tcgatgaggt ctgggatgat 360
 tctgcatgtg atactagcgc agtcttcag attgtcacat gcatccagat gcgacatctg 420
 gcgogctttg tgcttggtca tagccgctt cttttatctt gatttgcta atgagcccca 480
 tttccagacg tggacggcag atcggtcata aggtccaaga gcaggaaatg ctatgaggcc 540
 gtttgcggtg tctacctctg ctggcctgcg aaaagactgc ctgtccgact tcaatatctt 600
 taaacattag gctcttcagt tgtctcgctc agaccattat tatgagttat tgttaccgta 660
 gtgtgttgct atgtcagccc gtgtagtctc gtcaatttct ggagggtaat gcgaacttgt 720
 tcatgacggc acgtatctcg tcgccccgaa gatcaccctt gttgagaagg atttcatgcg 780
 tctgcgtcct cgttcatggt gacatgaatg atagaagccg ttctgaagac acgaaatgtg 840
 gttgacatat acattgtgat gctcatgtct tttgtcagat caccaagatc cgcaaccatc 900
 tcattctctt tcattttggt taggtaactt cgcgaaa 937

<210> 22

<211> 3025

<212> DNA

<213> *Marchantia polymorpha*

<400> 22

tcatgatgtt aagcgttttc ataattccaaa gaggttttgt atatagataa aatttacttt 60
 ctgaatatgc aagcatcata ttctaaattt aatcgaacat aattttttct gagctttctc 120

tttctttttc tttaaattaa atttccttca ctgcaatttt tttattacga ctcccacgag	180
gagtattttc cgactataga tcttagggta tataactata tatcacgctc gttctaaaca	240
ttttttctaa ttttatgaaa agagataaat atattaataa tataggttat ttagattatt	300
gaaattcaca gaaaatacca tttttgtctc attcgatatg ttctagatgt gtgtgcgtat	360
atggtcatat acttgggata tttttaaatt gtgaatacaa gattataaca aagttatcat	420
tgcaaaatac taaagataag ttatctttgg tgagaagaca tgatatacca tctgcatatt	480
acttattcac caattgacca aagatttaca atctaccttg atgaaccata aatttgagaa	540
ttttatatgc agatatattgc ggatctttcc aatcattatc tagctcttgt ttacattttt	600
gctttcacaa aaatgcaata atgtgaaagt tgatgcaata atccctttag gttttttgac	660
tcataacaat tttctctcca aagcattgag attcaatgtg gacgtgatac ataaattcac	720
atcttgatta gttacatata aatgtggaac tgccgtattt gtcggaaagt tcatacaatt	780
ttttttgttc atttgaagat cataagatag ctgcatatat caccattagt gatgatatga	840
tatatgacat gagaaaaata taacttaata tgaaggaagt cttgatatgc cttgctatcc	900
ctaggttggg gtaggtcttt ctttcatttg cgattattat tactgtgagg aatattcgg	960
agaatggatt ccttggaagt gttgtatttt tgacctctca taattaagca cagattaatc	1020
ccttcatttg tggcttatca atcaagtggc ctacgaatga ctctaatttt aagattat	1080
ttgtagttgt gtggtgtttt agtagttacc aatcttatac ttgaaagaaa atgaaagcaa	1140
tgattactca tactactcaa tgccaagatc ggaggctaaa tccaatgtat acaagtatag	1200
aaatttgtaa agagttaagc tctttctttg ttcattgtgc tttgaggctt tgtaaaaaata	1260
tggaacattga ttcggatata gaggtgagtt gtgcacaaga gatgaccata cttggtgtca	1320
aggtgtagca tttttttcag attatttata agaaaataat caggaaagga aaataagtag	1380
tattcatcct agatataaca tttgtcgaga aatctacgag ataaacattt tttcagacga	1440
gaacaattct tcaaattttc agatgcaagg gtacgcattt agcattgcgc tgatattaga	1500
gctagtctcc tattgcatgt ttgatttcat acatgtacca cccattcttg ttactgcagt	1560
gtgtgaaact tgttgaataa gaagttccgc aattatttca aattattgag agtcttctta	1620
cataattttt acttatccaa aattcttaag aacccacaa taaattcagt gatacgcttt	1680
gaatggctca ccagttactg gactgccaca attcgagca ttggagactt ggccaactca	1740
accagagaag ggaccacgct gaacgatcta cctccctccc agtgagtgag tgagtcttcg	1800
ggtgcagtat tgtccaagtc ctggaatgtc gatccagccg caggaccagg aagatcgggc	1860
cgggtacagt aaagttgcca taacaatccg gcaacgaacc acagatccg gacgatctag	1920
cgggaagttg aagtccaagg ctcggggcac atctccctgg tagaattaga atccatagcc	1980

agaattctat ctcgaaacct tgtttcgcca gcgttatgat tataatcaag cgtccccgtt 2040
 aatctgattc ctgtgaaagt tagttagtaa cttcataccc cagcattatg attataatca 2100
 agtgtctcag ttagtctgat tcctgtgaat gttagttagt aagttcaggc cttctcgtaa 2160
 tagcttcttg cgtataatct gaactgttga taatggttaa actcttgaat tacgacatat 2220
 cagtcccggg agattaatct gcttccgcta agctcgagga tgcacagcag taattttggg 2280
 tcgtttggga ttgataaaa cggacgggaa tatgcgtcgc gagttccgag taggagttag 2340
 gaggaatgca aaccagcggg ccacgtaaag aggccacga cagtccagca gccagctgt 2400
 gagacacaag ggggacgaaa gggaccgccc aggccgacca cctgatgtca gggggagctg 2460
 gtgcgagcgg cgacggacat ggatcggcgt ttggttgccg tccagaagcg ggcgaggagg 2520
 gatccgcatg agtgacacag tgggggcaga attgggagaa gatcgtgggg gtaattgaga 2580
 ggggagattc gggttggggc cgagacaggt aaggaacacc gatgatgetg aggaaaatat 2640
 gaggaattcg tgagaatgcg acagggcgag agcactgtgg ggcagaatgg aaggggggcc 2700
 agcgatattc gagcaataaa ataagagcgg gggacattcg aaaagaggcc ccatataaag 2760
 ccgatcttcc attctgtttt cacagagctc ttcgtcgaac agagcctctc aaactcgctt 2820
 tgtgctccca gtgcttctgt ctcggatctg ctctgctcgg cttcgcgctt gttgttcttg 2880
 tgaccatcac cgccttcagg acgctcacgc ccaacgcaag aatttcgagt cgaagtaagc 2940
 gagcagctca atcgcttcgt taacgcgttt gcggagatct tcgaggtttc gcgttcgaag 3000
 ttcttcggac acctccttcg ttaac 3025

<210> 23

<211> 909

<212> DNA

<213> Marchantia polymorpha

<400> 23

aagcttagca agcagctctc gcagcggatc tgctcttctg ctgctccctc tgcttcctcg 60
 tgctacacgg tcttcgtcct cgttccctcc acgcttctc gcgctctctc caggtaactcg 120
 tcgcctcgcg ctctttcttc ttcttagttc gtccgttctc cgtaccggga tagggcggtc 180
 gcgggtctcg tgagggtttt ttcgagcaag gtgcgtgagc aagttcatat cggtgggcaa 240
 tgcatggggc gaacctggtc gggccctttt ccgaggccgc cggagagcct agtctccaag 300
 ctgtagtatc ggtgttctcg aagatcggtc ggtgtctgca tctctccatc tcgattcgtt 360
 tcgtctgagc tgatccgccg gtcgattttg acgatgtcgt gtcctcacct acgcaagttt 420
 ggttccgagg attagttttg aagatgctgt caatgggaag tttagctctt ggttcgtgat 480

tagtttggac acggtcacat gaatcgtagg gaccaggtg tcggcgga tttcagcag 540
 tcatttcggt ttccgtaacg ctggatttaa gctgaaaacg ttcacgatg gattgcggat 600
 accatgacct aatggatcgt ccagcttatt cttctggaag tatagacgtg tgatggctgt 660
 ggctgtggt agggttggac acgcccgcag tggctctcc gaatttgaat gtgcgaatgg 720
 tcgatgtgct ctgccgattt ggggaatcga agtggcaaac cggtcgttcg gactgtcgag 780
 tgtatgcctg ctgcttgtgc gatgtagtgt ggatttttcc tccgatgtt tccaaacgtg 840
 gtcgggattg cagttcttca atctaccagc ggagctaatt tcgtctttgg cttgcagtct 900
 atcgtcgat 909

<210> 24

<211> 2146

<212> DNA

<213> *Physcomitrella patens*

<400> 24

atacaagagt tataaatcat atacaatgat tactttcata taattgttga atattattgt 60
 tacaacctaa gtaacaataa cattcaatta aacattcatt gtggttttca agcatattaa 120
 tcattctttc ttctctaccc tatagtgatg ggaaattatc ccaaactcaa tgtcatactc 180
 caggcaattc agaaatatag tgagatgaat accaggaata tttattcaca tcgaccccta 240
 tcgccgggca atgccactcc caccgcggaa tgagaaactc cttgaaaaaa caagtccott 300
 cccagctgcc cgaaatcggc cgcttggtca gcacggcacg aactgcca cgtgcaatcc 360
 tgacgtggcc tctacgtccg gaaggcggcg ccgttagcga tgtcctcta tgcaagttcc 420
 tcttgtggcg gggcagtggt cccgccaaact tcaccgtcac cctccacccc aacaagtggc 480
 ccaaattact caggggcagc ccagcttcga aattttaagc ggtgaccgcc ccttctcatc 540
 gtcacgcgtt acttcttttt cactcaatcg agtctgttta ttattggccg ctaggaaatt 600
 gcagcttcca actcgcac cccgcgtgca gtacagtggga gatcttcaag agtgtcctca 660
 ccaggaattt gcaacttgct ccttgcaatt tgtaataaat ggacagagaa gcctagattc 720
 cgcattccaca gtgatgggtc acgtatcaat aagcgaagct gcgttggcaa ctatggcaat 780
 tggtttggtg tcttcgttcc tgtcaagttt gaaaagaaga gggagatctg atttcttaat 840
 aagtgtcgac ttgtctgggt agtggattgc gtggggcggt tcgtagtgcg acgcgatcgc 900
 atcaaattca tcgctcaaa atttgtcacg ttgttgggtc aattgcaacg aactgcgatt 960
 gaaggattct tctcgtggc cttcaaattt gcttttagtat gacagaagtt ttgcagctgt 1020

actcggcggtt tggaggaggt ggaagtgagg tggatcacca cgcaccggag ttggtgaatt 1080
gtttactgca gaaaaaatg gctttgatca catcagaatg attgatgttt cagcttgaat 1140
ttcacctcaa gatgtgttct catcatgaaa tttttattgg gccaggatgt actttcattg 1200
ttttgaaaga atattttaag acgcttgtgt tttacaacct ttcggaagat gcgtccttga 1260
ttgaaagtgg ttaatgtttt gtacatcatt actggatatg aaaataccaa taaaatgaaa 1320
tacaataaaa tttttttttg aaatgaaaat tggtttaaat aagcatgtaa ataatagacg 1380
gtggagtaaa gaaaaggtaa taaaaaaaaa agtatgaatt ctattactct tcaatataaa 1440
agtaagaggt gtccgtttgc aagcaataaa aattcagtaa ttgctagata aattcaaaag 1500
ccaaccaata cacaccattg ttttgctgca aagctagggt ttctaaggcc acaattcaat 1560
gactagtac ttacatatta ctccaaacc gaagcaaagc aagggtactc cacgattgta 1620
tatatactca ctgttttatt tttaaaccat ctgaaatcac acaaaaatgt tgtgacctg 1680
cttcattatg ataattaagt gacgttttaa tctcattaaa tttaatgcca ccgtaggtta 1740
tggacggaaa tggatggatg taaatggaaa gatcggcggc aaaaagacca aattccatac 1800
tactgcccga gtccgataaa gacggaaaca atgcgataaa agtaaaagtg agcagaagaa 1860
agtgcacggt cgaaggcggc gtttgtttac atttacttca ccaaaaccga gcaggatatc 1920
gggcacacgg tcaggaagaa attgttcatt acggtcagaa cattctggat ggttggcgtg 1980
cttgctataa gaacactgct cctccgatct aaacctcgga ttgtgcgctt ctagatactg 2040
aatttgtttc gacctgcct tgttgagtgg ccgtagaggc tcgacagtta ggatcagtgt 2100
gcggttgaat ttagtgattg tgtagcgacc agtacgtcct gtaagg 2146

<210> 25

<211> 524

<212> DNA

<213> *Funaria hygrometrica*

<400> 25

gaattcatth ccattaacga gaatatgaca gtgggaagag ctccacgtc atccaaactc 60
aaagtatccg acgtgggtcaa tccaagtgcc agtgccacct cagctccttc accagtccat 120
ctcgcggata aggggtgacag caaggcgcgg tattactgga taagagaagc ggccaaggcg 180
gcagccactg tgggtccactt tgctgcgtca ctacctactg cgattgtaat gacgagcggc 240
agcgtcgtgt gacaggttg aaccgaccgc tgcttcagcc gcaggcagac tagaaaagtt 300
tactcgtgt cccactcgtt ttctgggtgt gcatccgaag tttctggatg gttgcccgtc 360
gttcaataaa ttgtcgcgcg tcgagctagc ggacactttt gtcaccgttc ttctctgttt 420

attctggacc agaggtgctg ttagctttgt tgtgtgtgag tccttgggga aatcctgcg 480
 cgtcacgaga gtttattgca gggaagtgat aaagcgttgt gaag 524

<210> 26

<211> 2088

<212> DNA

<213> *Physcomitrella patens*

<400> 26

atgcatgtaa gataattcca attagaatct ataaatttct tattataatt ttttaaaaac 60
 aaagtaccaa aatattatta ttttaatatc ctctaagtta aatccatata ttaagtagaa 120
 acaattattc taataataaa tgataaaaat tagacatctt gcaataaaaat ttctttttta 180
 aaatagatac ataacatgaa aaatatccca taaatagcta acaccatcaa aacatttgac 240
 caaatatgca ctttttagatg tgtcaagaca aaaagaaata tttgcaagat tttggagtat 300
 ctaaactaat gtttgtcctc ttgtcactat gagtaggatt tcttttattt tgttttagtga 360
 aaagatacat tgcaatttgt tttcataata aaaactatac taatgaaata gtgctaaaaa 420
 ataacaagat taaaaaaaca taacccttct tacaacctta aatccttcta attagactac 480
 ctcaaagttg tgccatttag cacaaaaacc attcttttaa atctacttaa ccctccaatt 540
 tccaatgagc ttcattgtgca tacacaagca tgctttcttt ctttctttct tgaagaaaac 600
 ttatctgaac aaacgttaat actctacttg ttgatgaaag tggaactttg accacataca 660
 ggcttgggtga tgtactttgt atatctcctc acagttagtc tgggtgcaatc caaccatgca 720
 catagaatat gaatggggac atgcttcag ccactcgggt gtgcagaaaa cttgacaagc 780
 gagattcaag caacggcgac tacgacgccg atcacgcaat acaaagcatt gttagtatgt 840
 gataaaccag agaaagagat cgagtatgtg cacacaaaaa cacacagatc cacaggattt 900
 gtctacggcg ccaccaccat ccgtcaaagc taccatctcg tcgaggaaga atgggtatttc 960
 taaaactagc aatacaaccg ctgatggaaa caaccgaaag ctatgtcatt ggagagggcg 1020
 cacgagttca tggaatacac agtgagaaga gataaagaaa taaaataata taaaatacaa 1080
 gtgtgcatca gcaagacatg gccgaaatct aacaactgtc tgcacatgct gtgggtgggtt 1140
 gtatccacgc gctggaggaa gtaactttcc tacatgcaca gaaaaacatt ttcagattag 1200
 aaagctcttc tgttctagct aatctctagt accaagctca gacgtgtagc cgacgaagcc 1260
 aatagcagct gggatatgcta gtcactgatt ctgaagcggc cgggtgtgtcg attgcgatgt 1320
 atctcagttc ggcaaggcc tgtgtctgga acatgggaag agggctcttct tgcactcgtc 1380

```

aatctctcac agcaactggg cagggttgta tccgaacgtg gaaaacgcag caaccgttgt 1440
tgaaccaaag gatggtatctt ttctccgaga aaaacgccgt ggcttatctg gtgtagacga 1500
tccctaatacc ggacatgacc gccgctgtgc aggtgttggg aaaccacaat gcgcaagaga 1560
tgcgagagat ggaggagtgc aagaagtacg actgcgaagc tacatgcttc atcgagcaat 1620
gaagtctggg ttttctccaa ctccgcgatg cacacacttt tctcgacgac atccgtttca 1680
aggtacgcac cgggaaactg acgattctct gcaactggtg tcagactctc cggagaggcg 1740
gtgtcatgtt ctgagctctt ttctgataag gtgctgttga agtccagaat aatggggtct 1800
ggattatcct ctggacggct ccgcttctgg tcgaaaaaat ttcattccaa aaaaggactt 1860
atctgttgac tgaaaatgtt taattgtggt gaggattgca tgcagcgacg tcgtaaagat 1920
agggtgacaa ggagcgttcc agagctcagc tcggggcatg ccccggcact ccctagcata 1980
taaacatacc ggggtgaatt tgtaccacc aggtcttget cgggtgtccc tgtgccaag 2040
ctgttggtg cattgccctt gcgattcgag tgtggagaga ttttagca 2088

```

<210> 27

<211> 500

<212> DNA

<213> *Physcomitrella patens*

<400> 27

```

ggaacgaatt tgtcgagctc tctggttctg ggtcgggtag cagtagcttt gatggtgagg 60
cactgacagt cagtcgctca cacggcaaag tagcctggat gtgcttcgca acgaactctt 120
gaatttgagt atgtgagttc actttgaaca tcccagaagc aaaagaatgg gttttttcat 180
gtttgaattt tattttgtat agttgtgttg agccgcgatt tctatctgtc acttggttg 240
atattctgag tttctccgat acgaatagcg aagtccactt gaacatctgt aacggcagca 300
attgcgtcag gtcaatcctc tcagattctt tcgggtgctt tgcgtgaaac tagcttgatt 360
gttggtcatt aagcttggtt gcttttcgtg agaaagcatg aaacttctat gacgaaaccc 420
ggttgattgt aatgtaacta gtttgattgt agtttgaatt tggttaattgc gttgtatgat 480
acataatgaa agtttcatga 500

```